SeisHub - a web service for archiving, processing and simulation of multi-component data in seismology

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With this contribution we introduce our improved prototype SeisHub: a web service and database for archiving, processing and distribution of seismological data via a network, such as the Internet. Many seismological databases and processing tools that were developed in the past decades are now outdated and require novel approaches. SeisHub aims to be an answer to this issue with the intention to closely link data archiving, waveform processing and simulation infrastructure with strong emphasis on seismology. A RESTful web service has been build on top of Twisted, a network programming framework written in Python. As data backend are standard relational databases used. Data indexing and retrieval has been improved by implementing an advanced indexing algorithm introduced by B.C. Hammerschmidt. Common design patterns widely used in the Python community have been adopted, e.g. Zope Interfaces, PlugIn architecture, Test-Driven Development and Python setuptools. The SeisHub architecture is so far a very general approach and absolutely not limited to seismological datasets. Upcoming applications for SeisHub will narrow the usage down to the field of seismology, e.g. storage of observational data retrieved at the Bavarian Seismological Network (BayernNetz) and being a core component in the Volcano Fast Response System (VFRS) of the Exupery project. All software will be developed in close collaboration with and be freely available to the relevant user communities.